City of Santa Clara
Building Inspection Division

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KITCHEN AND BATH REQUIREMENTS

October 15, 2004

City of Santa Clara
Building Inspection Division
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KITCHEN AND BATH REMODELS

MINIMUM REQUIREMENTS FOR BATHROOM REMODEL:

GENERAL RULE: At least one 20-ampere branch circuit required to supply bathroom receptacle outlets. Such circuits shall have no other outlets.

A permanently installed bathtub equipped with hydromassage or therapeutic equipment must be supplied by a dedicated G.F.I.C. circuit.

Exception: Exception permits other equipment within same bathroom to be supplied by 20-ampere receptacle circuit where the circuit supplies a single bathroom only.

BATHROOMS (No Permit Required)

1. A plumbing permit is not required for replacing a water closet or lavatory back in the existing location.

2. An electrical permit is not required for replacing outlets, switches or light fixtures. However, we will advise that the replacement outlets be G.F.I.C. protected type and the bathroom light fixture be fluorescent type to meet Title 24 requirements.

3. A building permit is not required when replacing less that 32 sq. ft. of drywall or floor decking unless it includes subfloor, joists, girders. No permit is required for replacing floor covering.

KITCHENS (No Permit Required)

1. A plumbing permit is not required if the kitchen sink is being replaced in the same location and no plumbing alteration is made.

2. A mechanical permit is not required for a replacement exhaust hood/ventilation fan installed in the same location and no ductwork alteration.

3. An electrical permit is not required for replacing outlets, switches, light fixtures, or appliances in the same locations and no alterations done. However, we will advise that the replacement outlets be G.F.I.C. protected type and the kitchen light fixture will be fluorescent type to meet title 24 requirements.
4. A building permit is not required for replacing cabinets and counter top as long as the configuration of new counter top does not require additional outlets per NEC.

KITCHENS and BATHS (When a permit is required)

1. A permit is required for all other work and current code requirements will be mandated as it pertains to that particular scope of work. Any new work, such as added outlets, a new appliance, new plumbing fixture, appliance change to gas, new light fixtures shall comply to current code and Title 24 for that specific installation. The attached handouts can be used as a guide to owners/ contractors in remodeling kitchens and baths.
2. For complete kitchens and baths remodeling projects which may not require a building permit but require an electrical, plumbing or mechanical permits, minimum current code requirements and Title 24 requirements are applicable.
3. A major remodel would be including, but not limited to, complete gutting of wall coverings, adding a soffit or wall alterations, cabinetwork or countertop that changes outlet or appliance spacing, rewire of kitchen or bath, etc. (**NOTE:** Fire repair and termite damage are not exempt from this requirement.)

NOTE: "Before and after" floor plans are required when applying for permits.

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KITCHEN and BATHROOM CIRCUITS REQUIREMENTS*

MINIMUM REQUIREMENTS FOR KITCHENS:

CIRCUITS - (No lighting or other outlets may be on any circuits listed below.)

2 or more		20 amp small appliance branch circuits. Serve kitchen, pantry, breakfast room, dining room and clock, electric ignition systems (gas cook top).
1	-	15 amp or 20 amp for built in microwave fix in
1	-	15 amp for each garbage disposal
1	-	15 amp for each dishwasher
1	-	15 amp for each compactor
1	-	15 amp or greater permitted for refrigeration equipment

RECEPTACLE SPACING FOR KITCHEN COUNTER

NEC Code requires a receptacle outlet at each counter space wider than 12 inches, spaced so that no point along the wall line is more than 24" from a receptacle. Receptacles to serve island or peninsula counter tops shall be installed above, or within 12" below counter top. Receptacle outlets shall be installed so that no point along the center line of the long dimension is more than 24" measured horizontally from a receptacle in that space. The measurement of a peninsula type counter top is from the edge connecting to the non-peninsula counter.

Counter top spaces separated by range tops, refrigerators, or sinks shall be considered as separate counter top spaces. Receptacles rendered inaccessible by appliances fastened in place shall not be considered as these required outlets.

Receptacles shall not be installed in a face-up position in the work surfaces or counter tops in a kitchen of dining area.

All 15 and 20 ampere receptacles that serve counter top surfaces shall have G.F.I.C. protection.

Receptacle outlets that serve counter top surfaces require GFCI protection for personnel.

One receptacle outlet required for peninsular and island counter spaces with long dimension of 24 inches or greater and short dimension of 12 inches or greater.

Section 210-52(c)

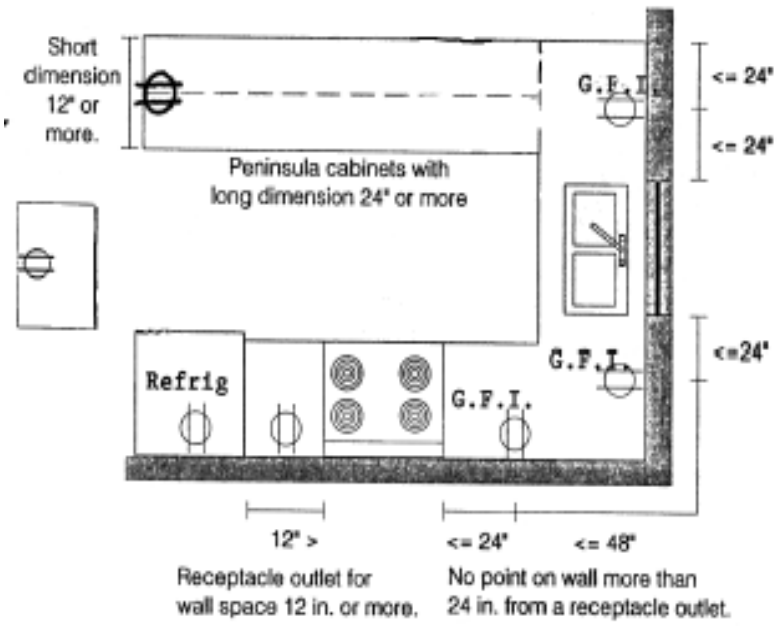
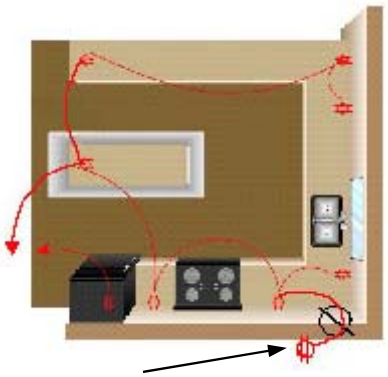


Figure 1 (Section 210-52(b))

Two small appliance branch circuits limited generally to supplying wall and counter space receptacle outlets.
Ex. No. 1, Clock
Ex. No. 2, Gas appliances



An additional dedicated 15-ampere or greater branch circuit permitted for refrigeration equipment 210-52(b) Ex No. 2

Outdoor receptacle outlets no longer permitted on small appliance branch circuits

Figure 2 (Section 210-8)

Receptacle outlets that serve counter top surfaces require GFCI protection for personnel.

GFCI protection not required as receptacle does not serve counter top service

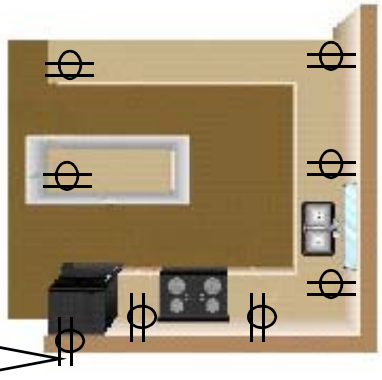
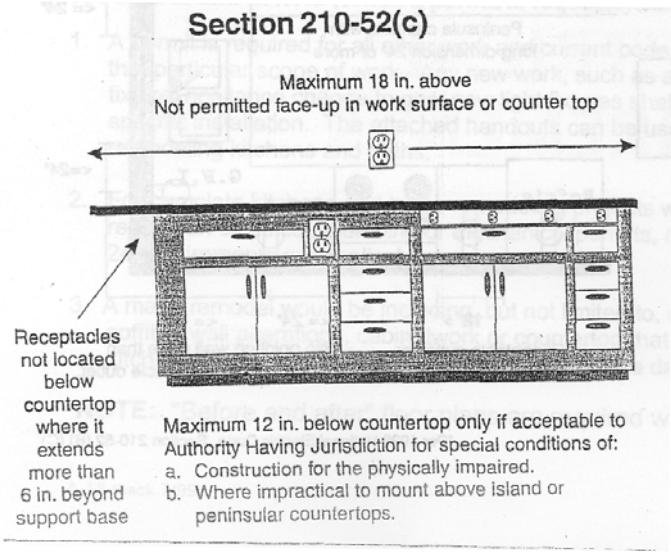


Figure 3



SMALL APPLIANCES

- Dwelling Unit Small appliance Outlets.

Two or more small appliance branch circuits shall be required to supplied receptacle outlets in the kitchen, pantry, breakfast room, dining room area. However a receptacle for refrigeration equipment can be on the small appliance branch circuit (See Figure 1.)

Appliances such as disposals, dishwashers, hood fans, or lighting outlets cannot be supplied by the small appliance circuit.

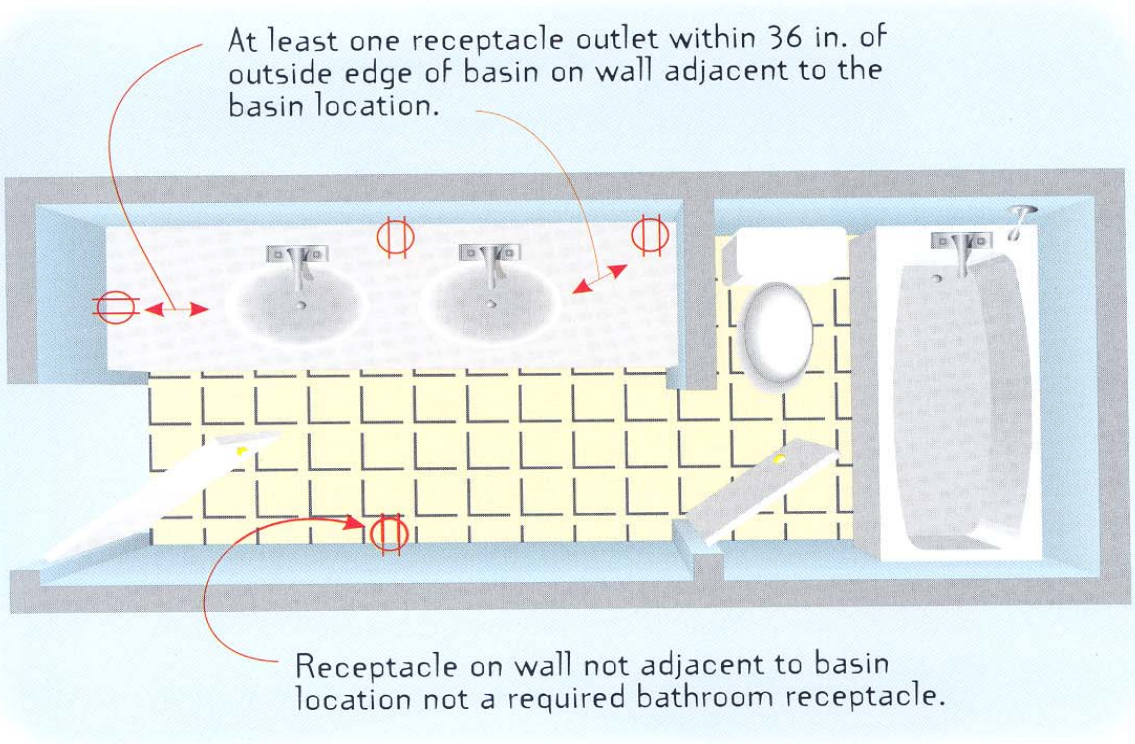
Note. The *Code* does not require more than two small appliance circuits.

- *Exception No. 1: Switched receptacle for lighting.* A switched receptacle for lighting is permitted in the dining room, breakfast room, or other area, eccept the bathroom and kitchen. The switched receptacle for lighting cannot be connected to the 20 ampere small appliance circuit.
- *Exception No. 2: Refrigeration Equipment.* Refrigeration equipment can be supplied from an individual 15 or 20 ampere branch circuit..

- **Not Supply Other Outlets.** The two 20 ampere small appliance circuits required in Section 210-11(c)(1) for these areas cannot supply any other outlet(s). This means that the kitchen light cannot be connected to the small appliance receptacle circuit.
  - *Exception No. 1: Clock Outlet.* A receptacle solely for an electric clock can be connected to the small appliance circuit, Fig.1.
  - *Exception No. 2: Gas Fired appliances.* Receptacles for supplemental equipment and lighting on gas-fired ranges, ovens, or counter-mounted cooking units can be connected to the small appliance. circuit, fig 1.

The two 20 ampere small appliance circuits cannot supply more than one kitchen of a dwelling. In effect, if a dwelling unit has two kitchens then each kitchen requires two small appliance circuits (four circuits),
This rule does not apply to a dwelling unit that has multiple dining rooms.

Section 210-52(d)



Section 210-52(d). Bathrooms (Revised)

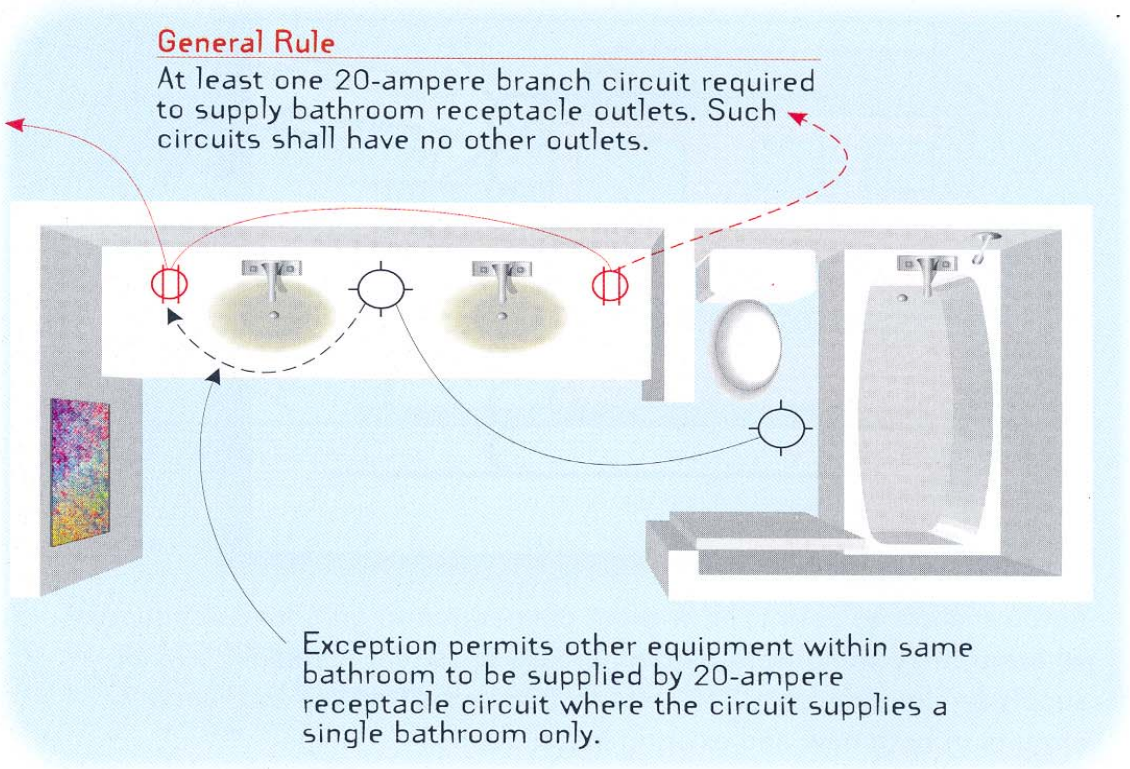
ROP 2-195 (Pg. 129) ROC 2-123 (Pg. 116)

Section 210-52(d) that provides the requirements for receptacle outlets in bathrooms has been revised to read: "**(d) Bathrooms**. In dwelling units, at least one wall receptacle outlet shall be installed in bathrooms within 36 in. (914 mm) of the outside edge of each basin. The receptacle outlet shall be located on a wall that is adjacent to the basin location. See Section 210-8(a)(1).

"Receptacle outlets shall not be installed in a face-up position in the work surfaces or countertops in a bathroom basin location."

The revision includes adding the 36-inch dimension to clarify what was meant by the word "adjacent" in the previous Code. The new requirement that the outlet be located on a wall adjacent to the basin location intends that the required receptacle outlet(s) not be located on the wall behind a person facing the basin nor on the face or side of cabinets.

Section 210-11(c)(3), Exception



Section 210-11. Branch Circuits Required

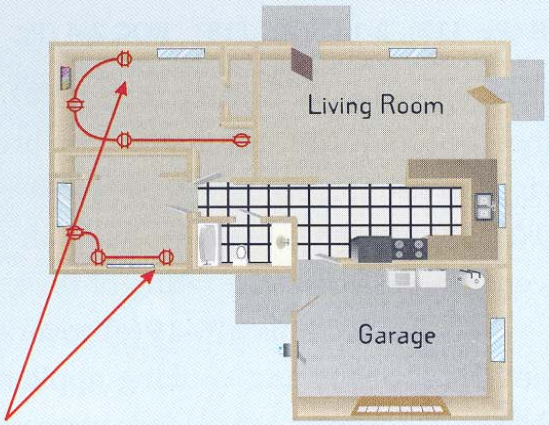
Section 210-11(c)(3). Bathroom Branch Circuits (New)

ROP 2-191 (Pg. 128)

Section 210-11 is a new section incorporating the requirements of previous Sections 220-4 and 210-52(d) that specified number and rating of required branch circuits.

Section 210-11(c)(1) through (3) specify the required dwelling unit small appliance, laundry, and bathroom branch circuits. New Section 210-11(c)(3) that was previously Section 210-52(d) requires at least one 20-ampere branch circuit to supply only bathroom receptacle outlets. This section also has a new exception that reads: *"Exception: Where the 20-ampere circuit supplies a single bathroom, outlets for other equipment within the same bathroom shall be permitted to be supplied in accordance with Section 210-23(a)."*

The main rule requires one 20-ampere branch circuit to supply only receptacle outlets but these outlets could be in several different bathrooms. The new exception permits one 20-ampere circuit to supply equipment other than the receptacle outlets but only within the same bathroom. Other equipment might be lighting or exhaust fans, providing the total rating of the utilization equipment fastened in place (excluding the lighting) does not exceed 10 amperes [50 percent of the circuit rating based on Section 210-23(a)]. See comments for Section 210-23(a).



Branch circuits that supply 125-volt, single-phase, 15- and 20-ampere receptacle outlets in bedrooms require protection by an arc-fault circuit interrupter(s). (Effective January 1, 2002)

Section 210-12. Arc-Fault Circuit-Interrupter Protection (New)

ROC 2-65 (Pg. 99)

New Section 210-12 recognizes a new type of protective device for residential 125-volt circuits. It is identified as an arc-fault circuit interrupter (AFCI). This device is intended to reduce the number of residential fires by combining wire thermal protection with the mitigation of arcing effects in damaged wiring. The AFCI accomplishes this by recognizing the electrical characteristics of the arc with subsequent circuit interruption within a short period of time. The device is capable of detecting arcs from damaged conductors and signaling a device to open the circuit in which the arc is occurring. New Section 210-12 reads as follows:

"210-12. Arc-Fault Circuit-Interrupter Protection.

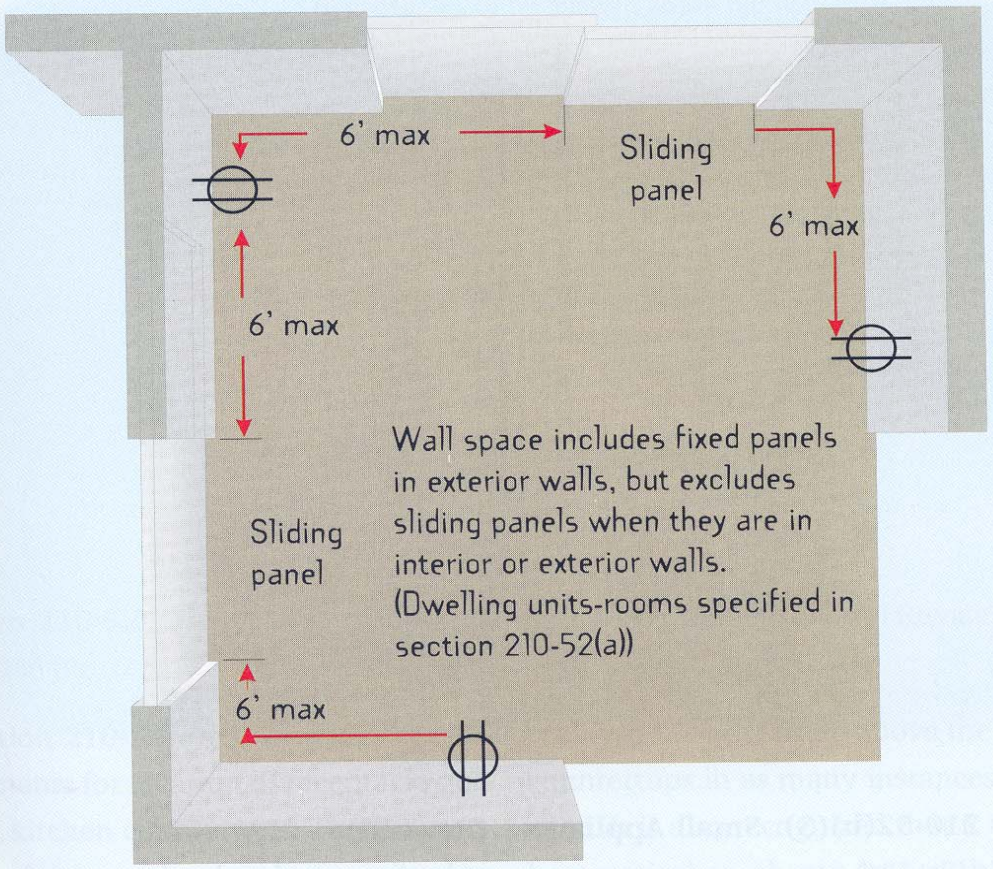
"(a) Definition. An arc-fault circuit interrupter is a device intended to provide protection from the effects of arc faults by recognizing characteristics unique to arcing and by functioning to de-energize the circuit when an arc-fault is detected.

"**(b) Dwelling Unit Bedrooms**. All branch circuits that supply 125-volt, single-phase, 15- and 20-ampere receptacle outlets installed in bedrooms shall be protected by an arc-fault circuit interrupter(s). This requirement shall become effective January 1, 2002."

Since the AFCI does not respond to current unless associated with arcing, it cannot replace the basic protection provided by a fuse or circuit breaker. However, the AFCI technology can be integral with a circuit breaker. Since the requirement is that the branch circuit be protected, the device would be required at the source of the branch circuit to provide protection for the branch-circuit conductors as well as flexible cords and equipment connected to the branch circuit. It should also be noted that this device does not take the place of a ground-fault circuit-interrupter required for personnel protection.

The new requirement is limited to dwelling unit bedrooms to permit these new devices to be introduced on a gradual basis. It is expected that there will be actual documented field experience prior to the requirement becoming effective on January 1, 2002.

Section 210-52(a)(2)



Section 210-52(a)(2). Wall Space (Revised)

ROP 2-151a (Pg. 120) ROC 2-110 (Pg. 113)

Section 210-52(a)(2) that describes the wall space as used in this section has been revised to read:

"**(2) Wall Space**. As used in this section, a wall space shall include the following:

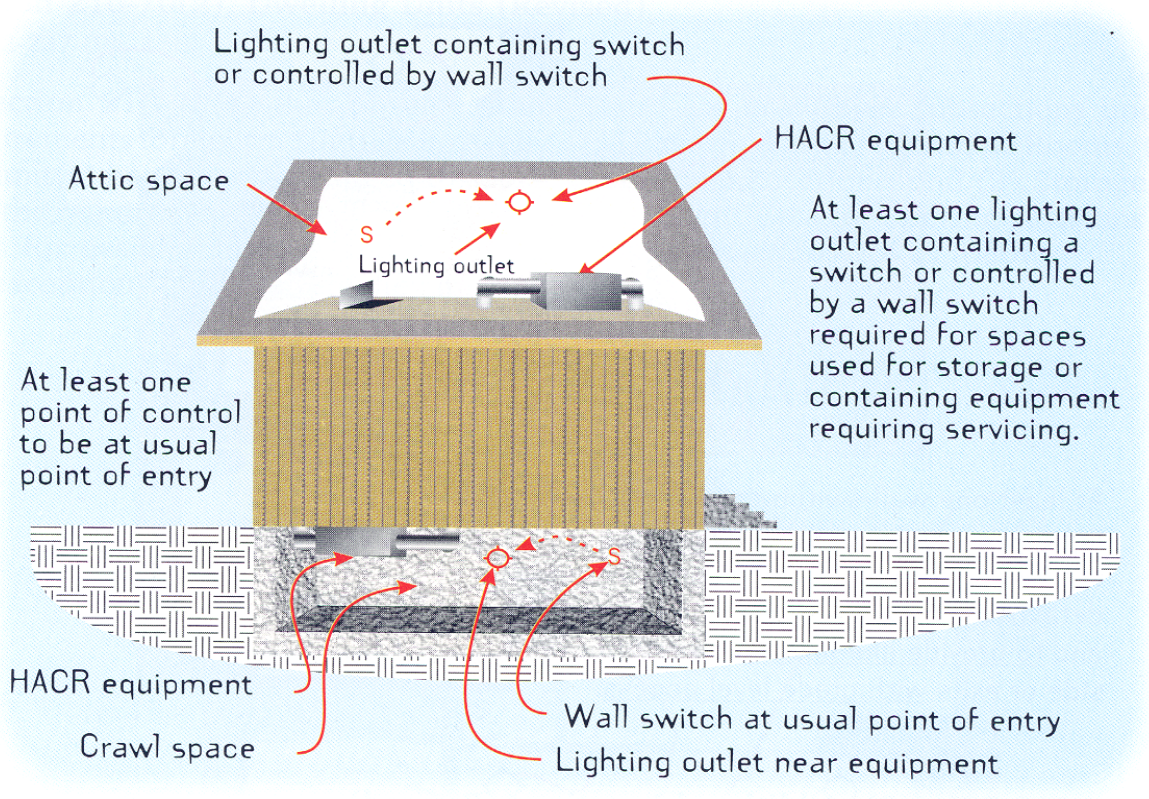
"(a) any space, 2 ft (610 mm) or more in width (including space measured around corners) and unbroken along the floor line by doorways, fireplaces, and similar openings.

"(b) the space occupied by fixed panels in exterior walls, excluding sliding panels.

"(c) the space afforded by fixed room dividers, such as freestanding bar-type counters or railings."

The revised wording of (2) consolidates and simplifies the description of what a wall space includes. In paragraph (2)(b), the term "in exterior walls" was deleted from the end of the sentence. This clarifies that sliding panels are excluded from wall space whether they are in an exterior or interior wall. It is not uncommon to have sliding panels separating two rooms or areas of a dwelling unit. Although they normally would have been treated as a doorway under the previous Code, this revision should remove any question.

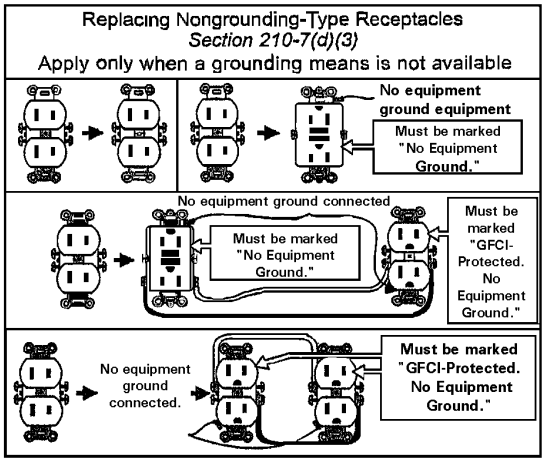
Section 210-70(a)(3)

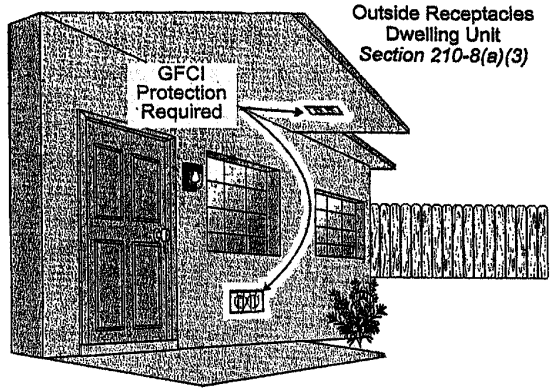


Section 210-70(a)(3). Storage or Equipment Spaces (Revised)

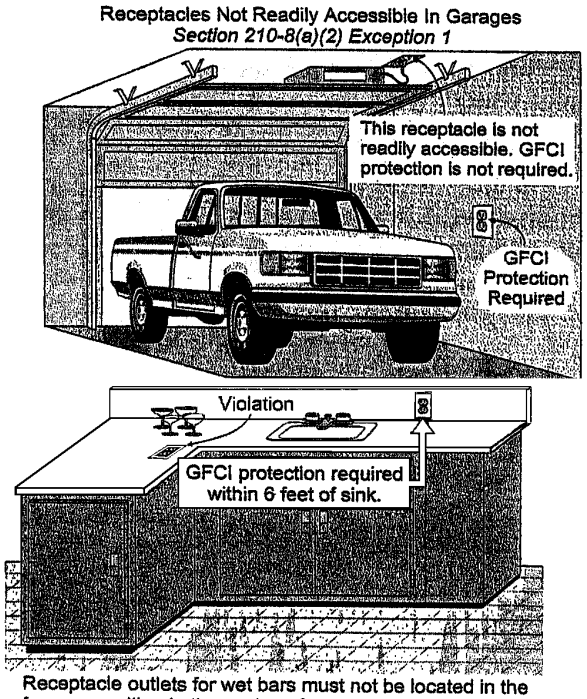
ROP 2-237 (Pg. 136)

Section 210-70(a)(3) includes the requirement for lighting outlet(s) to be installed for attics, underfloor spaces, utility rooms, and basements. The revised wording requires "at least one lighting outlet containing a switch or controlled by a wall switch shall be installed where those spaces are used for storage or contain equipment requiring servicing." The previous Code only required the lighting outlet to be controlled by a light switch located at the point of entry. Although the revised wording would permit a switched lampholder with a pull chain, the previous requirement that at least one point of control be at the usual point of entry to these spaces remains in the Code. Also, the lighting outlet is required to be at or near the equipment requiring servicing.





All 125 volt 15 and 20 ampere receptacles installed outside of a dwelling unit require GFCI protection. This includes receptacles over 6 feet 6 inches above grade.



Receptacle outlets for wet bars must not be located in the face-up position in the work surfaces or countertops of a wet bar sink

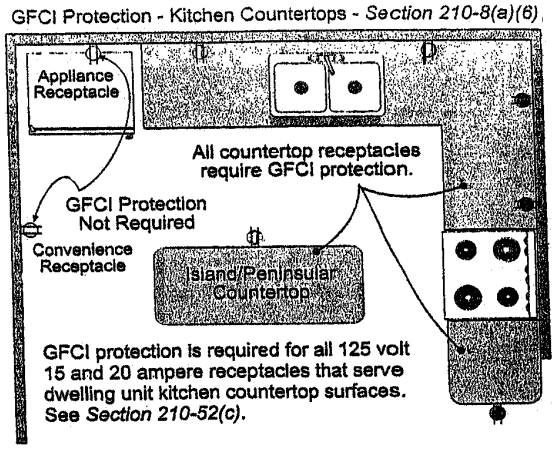
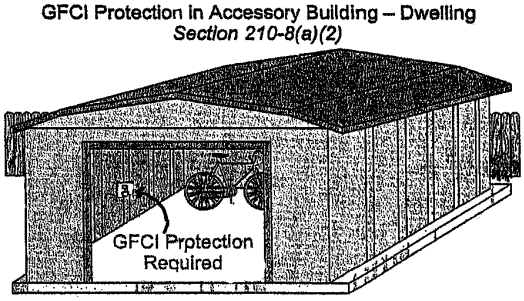


Fig. 5-16 GFCI Protection - Kitchen Countertops



Receptacles located in an accessory building and similar areas used for storage or work require GFCI protection. *Note:* The Code does not require receptacles in accessory buildings.

Fig. 5-12 GFCI Protection in Accessory Building - Dwelling

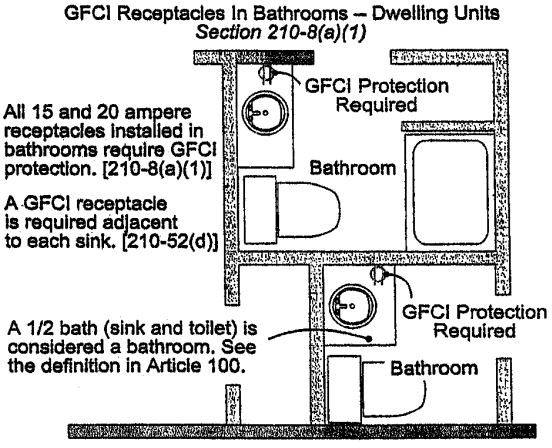


Fig. 5-11 GFCI Receptacles in Bathrooms - Dwelling Units

Table 2-7 – Typical Efficacy of Electric Lighting Sources

Light Source	Type	Rated Lamp (Watts)	Typical Efficacy (Lumens / Watt)[1]
Incandescent	Standard	40 - 100	14 - 18
Incandescent	Halogen	40 - 250	20[2]
Incandescent	Halogen IR	See footnote[3]	Up to 30
Fluorescent (Lamp/ Ballast Systems)[4]	Full-Size, 4' Long	32 - 40	69 - 91
	U-Shaped T-8 Bipin	16 - 31	78 - 90
	Compact Fluorescent	5 - 9	26 - 38
	Compact Fluorescent	13 +	42 - 58
Metal Halide	Metal Halide	32 - 175	50 - 90
High Pressure Sodium	White High Pressure Sodium	35 - 100	36 - 55

1 Includes power consumed by ballasts where applicable.

2 Halogen capsule incandescent lamps may be the most efficient light source for highlighting applications. Most halogen lamps are designed to produce a beam of directed light. Manufacturer's data typically list the "candlepower" intensity of that beam, rather than lumens (lumens measure total light output in all directions).

3 A new technology using infrared reflecting films on the halogen capsules has increased output up to 30 lumens/watt for some high wattage lamps.

4 Efficacy of fluorescent lighting varies depending on lamp and ballast types.

Kitchen Lighting

The Standards have mandatory measures that address: **voltage**

Kitchen Lighting
Bathroom Lighting
Recessed Lighting

1. Luminaires for general lighting in kitchens shall have lamps with an efficacy of not less than 40 lumens per watt. General lighting must provide a sufficient light level for basic kitchen tasks and provide a uniform pattern of illumination. A luminaire(s) that is (are) the only lighting in a kitchen will be considered general lighting. General lighting shall be controlled by a switch on a readily accessible lighting control panel at an entrance to the kitchen.

   Additional luminaires to be used only for specific decorative effects need not meet this requirement.

2. Luminaires installed to meet the 40 lumens per watt requirements shall not contain medium base incandescent lamp sockets, and shall be on separate switches from any incandescent lighting.

Installing energy-efficient lamps and fixtures can reduce lighting energy costs without sacrificing the quality or quantity of light available. The intent of the kitchen lighting code is not to increase the number of light fixtures and/or watts used by the occupant but rather to ensure that the builder provides - and the occupant uses - energy efficient lighting. A 40-watt (Full-Size, 4' long) standard fluorescent lamp is over four times as efficient (in terms of efficacy) as a 100-watt standard incandescent lamp of the Standards as, "…the ratio of light from a lamp to the electrical power consumed (including ballast losses) expressed in lumens per watt").

The general lighting in kitchens must:

- Have an efficacy of at least 40 lumens/watt.
- Provide a uniform pattern of lighting, such as a fixture in the center of the kitchen or around the perimeter (not a fixture in the corner).
- Provide a light level sufficient for performing basic kitchen tasks such as preparing meals and washing dishes.
- Be controlled on a readily accessible switch at an entrance to the kitchen (not in a cupboard or beside the kitchen sink).
- Be switched independent of incandescent lighting.
- Shall not contain medium-base incandescent lamp sockets. This prevents the occupant from replacing the efficient light source with an incandescent lamp.

If there is only one light in the kitchen, it is general lighting.

Additional luminaires for decorative effect do not need to meet these requirements, however, incandescent lighting fixtures recessed into insulated ceilings must be approved for zero-clearance insulation cover (IC-rated).

To clearly demonstrate compliance with the Standards to a building department, a lighting layout design that includes a point-by-point illuminance grid for the high-efficacy lighting may be provided. To do this properly, this grid must account for the room geometry, fixture placement, photometric data for the fixtures, lamp lumens, lamp lumen depreciation, and reflectivity of all of the surfaces in the kitchen.

Bathroom Lighting

Each room containing a shower or bathtub shall have at least one luminaire with lamp(s) with an efficacy of 40 lumens per watt or greater. If there is more than one luminaire in the room, the high efficacy luminaire shall be switched at an entrance to the room.

ALTERNATIVE: A high efficacy luminaire need not be installed in a bathroom if:

A. A luminaire with lamps with an efficacy of 40 lumens per watt or greater is installed in a utility room, laundry room, or garage; and Residential Manual

B. All luminaires permanently mounted to the residence providing outdoor lighting shall be installed with the following characteristics:

(1) Luminaires with lamps with 40 lumens per watt or greater; or

(2) Luminaires with lamps with an efficacy of less than 40 lumens per watt shall be equipped with a motion sensor.

Note: When using this alternative for multiple bathrooms, after complying with B. for the first bathroom, each additional bathroom in which a high efficacy luminaire is not installed must comply with A. alone.

3. Luminaires installed to meet the 40 lumens per watt shall not contain medium base incandescent lamp sockets, and shall be on separate switches from any incandescent lighting.

Each room with a shower or bathtub must have at least one luminaire with lamps with an efficacy of at least 40 lumens/watt. If there is more than one luminaire in the room, the high-efficacy luminaire must be switched at an entrance to the room.

As an alternative, both of the following are required:

1. A luminaire with 40 lumens/watt lamps must be installed in another room with utilitarian functions such as a laundry room, utility room or garage; and
2. All permanently mounted outside lighting must either be at least 40 lumens/watt or equipped with a motion sensor.

Luminaires installed to meet the 40 lumens/watt requirements cannot contain medium base incandescent lamp sockets, and must be on separate switches from incandescent lighting.

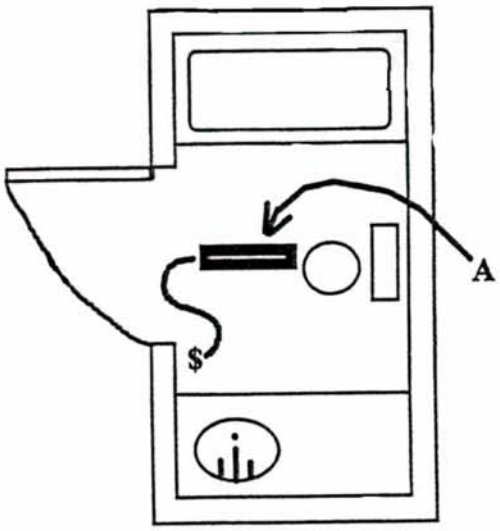
Incandescent lighting fixtures recessed into insulated ceilings must be approved for zero clearance insulation cover (IC-rated) in compliance with the code.

Installing energy-efficient lamps and fixtures can reduce lighting energy costs without sacrificing the quality or quantity of light available. A 40 watt standard fluorescent lamp is over four times as efficient as a 100 watt standard incandescent lamp.

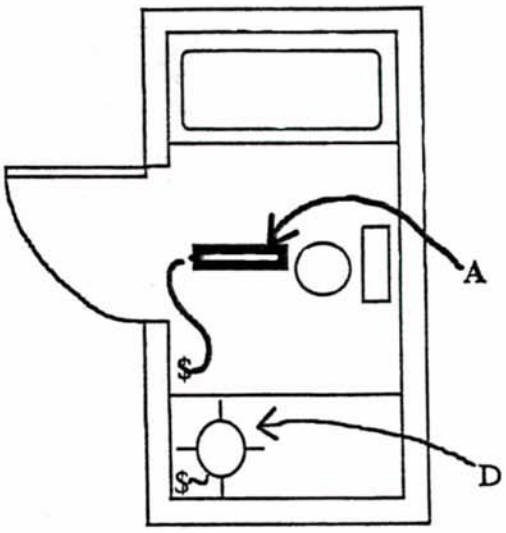
Recessed Lighting

All incandescent lighting fixtures recessed into insulated ceilings shall be approved for zero-clearance insulation cover (i.c.) by Underwriters Laboratories or other testing/rating laboratories recognized by the International Conference of Building Officials.

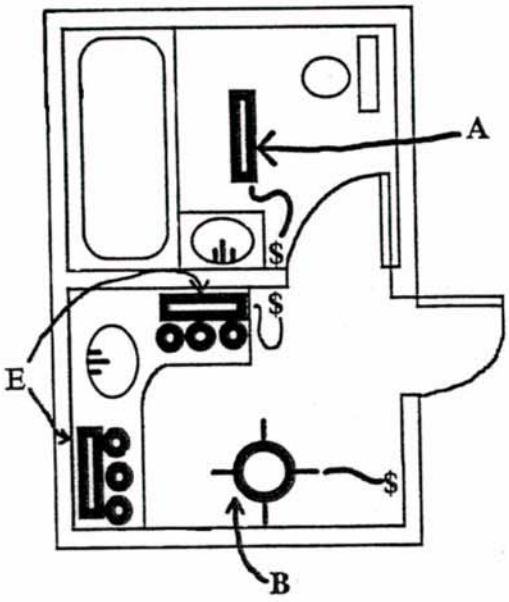
All incandescent lighting fixtures recessed into insulated ceilings must be approved for zero-clearance insulation cover (IC-rated). Although this requirement does not apply to fluorescent fixtures, recessed lighting fixtures left uninsulated significantly increase the heat loss through the roof/ceiling area reducing the effectiveness of the insulation. Heat lamps are not required to be IC-rated.



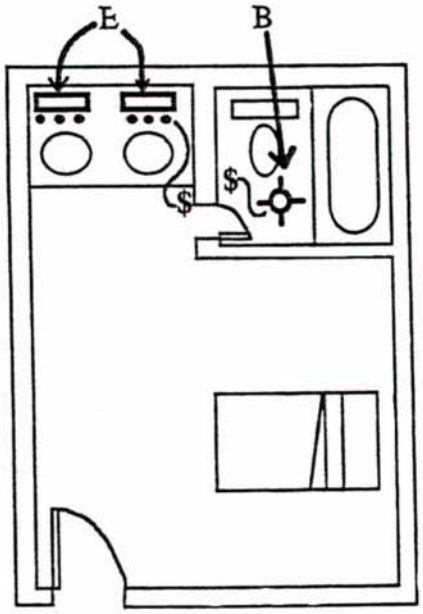
"A" must be fluorescent



"A" must be fluorescent;
"D" can be incandescent

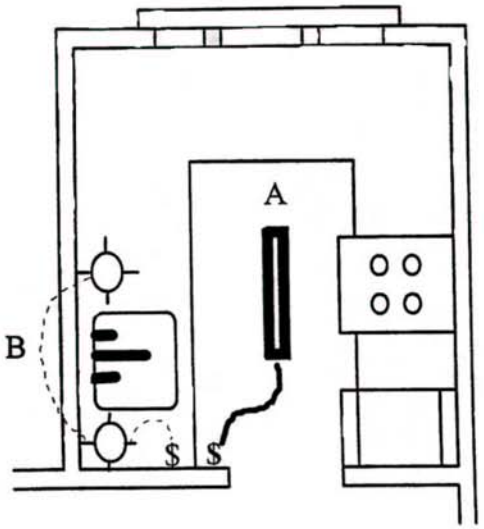


"A" or "B" must be fluorescent

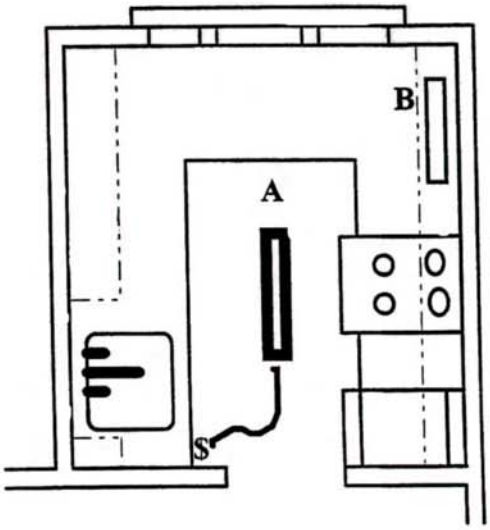


"B" or "E" must be fluorescent

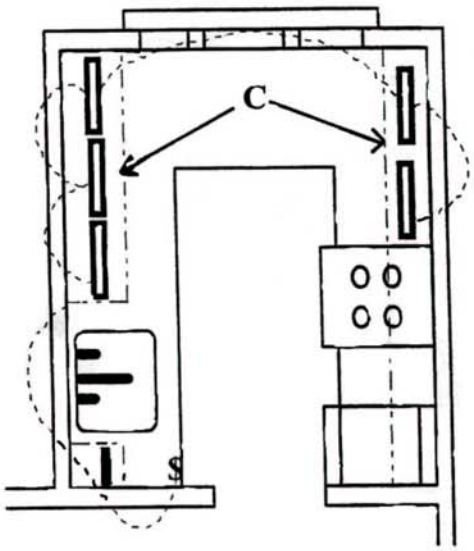
Figure 2-12: Bathroom Lighting Examples



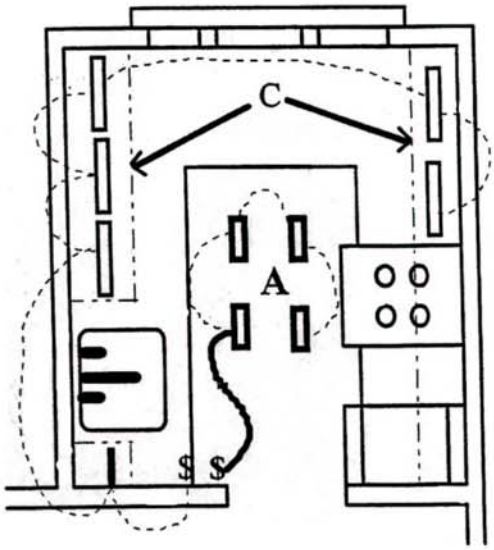
"A" must be fluorescent



"A" must be fluorescent
"B" alone is not general lighting.



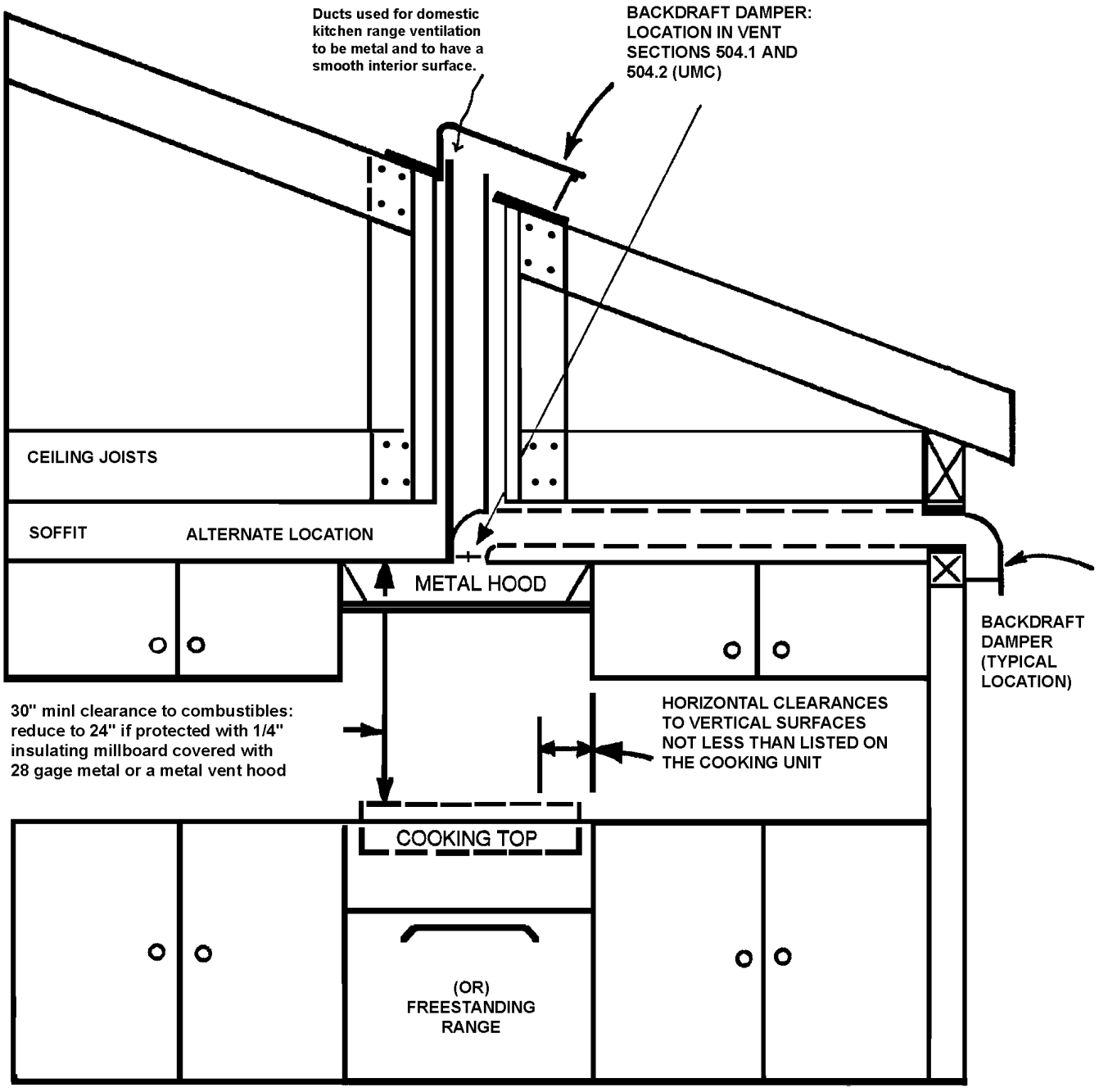
All of "C" must be fluorescent.



All of "A" or "C" must be fluorescent.
If "C" then "C" must be the most accessible switch.

Figure 2-11: Kitchen Lighting Examples

MECHANICAL KITCHEN AND LAUNDRY ROOM REQUIREMENTS



KITCHEN RANGE HOOT AND DUCT, Fig. 9-4 (UMC)

City of Santa Clara
Building Inspection Division
1500 Warburton Avenue
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Inspection Division: (408) 615-2440
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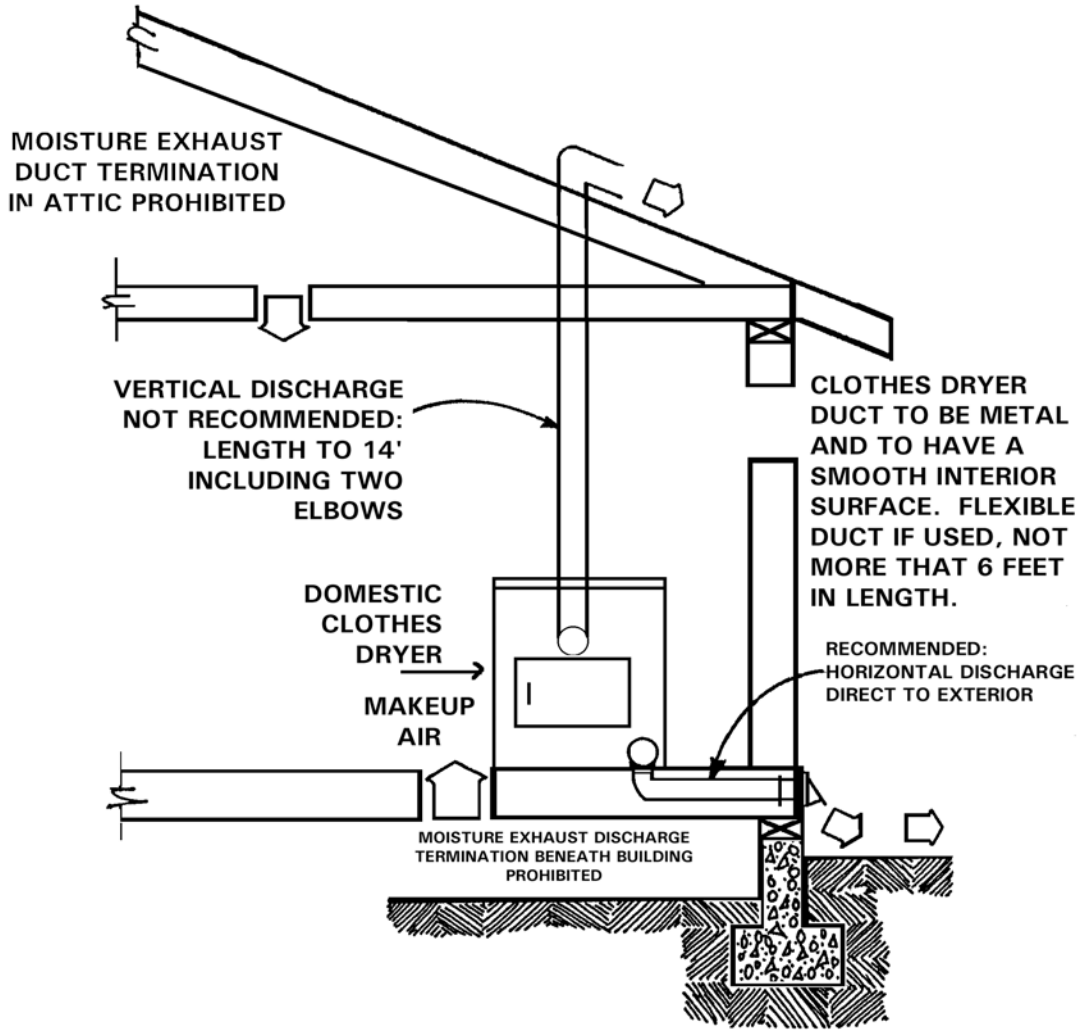
CLOTHES DRYER AND MOISTURE EXHAUST VENTS

Moisture exhaust ducts must terminate outside of the building and be equipped with a backdraft damper. Screens are not allowed at the duct termination. It should be noted that a moisture exhaust duct should not be terminated in an attic, even if it is well ventilated, because the moisture vapor may condense on the roof sheathing, rafters or insulation, particularly in cold climates. Exhaust ducts for clothes dryers must not be connected with metal screws or fastening devices which may extend inside the duct. This is to prevent the accumulation of lint, which may create a fire hazard. The best fasteners for use in this application would be blind pop rivets. To avoid the hazards of cross connections, clothes dryer exhaust ducts may not extend into or through ducts or plenums. Ducts must terminate no closer than a three (3) feet proximity from windows and doors that open back into the house.

Unless otherwise permitted or required by the listing of the device, and approved by the building official, domestic clothes dryer exhaust ducts are not to exceed a total combined vertical and horizontal length of 14 feet, including two 90-degree elbows. Two feet is to be deducted from the total allowed length for each 90-degree elbow in excess of two.



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The Building Inspection Division has served the community for more than sixty years. The Building Inspection Division 's mission is to protect the public health and safety by assuring that all installations and construction methods meet state and local codes. By being well informed of these codes and requirements you can assist in assuring a safer environment for you and your family.